

## Abstract

The present invention is a method of manufacturing a silicon single crystal by Czochralski method without performing Dash Necking method, comprising the steps of: providing a seed crystal having a tip end with a sharp-pointed shape or a truncation thereof in which an angle of the tip end is  $28^{\circ}$  or less; keeping the tip end of the seed crystal at just above a silicon melt to heat it before bringing the tip end of the seed crystal into contact with the silicon melt; bringing the tip end of the seed crystal into contact with the silicon melt and immersing the seed crystal into the silicon melt to a desired diameter; and shifting to pull the single crystal, wherein a temperature variation at a surface of the silicon melt is kept at  $\pm 5^{\circ}\text{C}$  or less at least for a period from a point of bringing the tip end of the seed crystal into contact with the silicon melt to a point of shifting to pull the single crystal. Thereby, in a method of growing a silicon single crystal by Czochralski method without using Dash Necking method, a success ratio of growing a single crystal free from dislocation can be increased, at the same time a heavy silicon single crystal having a large diameter in which a diameter of a constant diameter portion is over 200 mm can be grown even in the case of growing a silicon single crystal having a crystal orientation of  $\langle 110 \rangle$ .